

REMARKS

The foregoing Amendment and remarks which follow are responsive to the Final Office Action mailed September 25, 2003 in relation to the above-identified patent application. In the Office Action, the Examiner rejected Claims 35-37, 42 and 46-48 under U.S.C. §112 due to Claims 35, 42 and 48 purportedly reciting subject matter not disclosed in the specification of the present application. More particularly, the Examiner indicated that the present application does not disclose the lower surface of the molding compound as being generally planar. Though the Examiner specifically referred to Claim 48 in the second paragraph of Section 2 of the Office Action, Applicant believes that the Examiner intended to refer to Claim 46. Additionally, the Examiner rejected Claims 29-48 under 35 U.S.C. §102(e) as being anticipated by the Sharma et al. reference.

To address the Section 112 rejection advanced by the Examiner, by this Amendment, Applicant has amended Claims 35, 42 and 46 to describe the lower surface of the molding compound as extending along a first plane, and the lower surface(s) of the bonding pad(s) as extending along a second plane which is spaced from and generally parallel to the first plane. Claims 37 and 48 have each been amended to describe the lower surface of the die pad as extending along the second plane, and thus in generally co-planar relation to the lower surface(s) of the bonding pad(s). Applicant respectfully submits that the above-described changes to Claims 35, 37, 42, 46 and 48 have effectively overcome the Section 112 rejection presented by the Examiner in the subject Office Action.

Referring now to the Section 102(e) rejection presented by the Examiner, Applicant respectfully submits that each of independent Claims 29, 39 and 44 is not anticipated by the Sharma et al reference. In Figure 1 thereof, the Sharma et al. reference depicts a device 100 which includes an integrated circuit chip 110 attached to the top surface 121 of a die pad 120 through the use of epoxy 160. In addition to the die pad 120, the device 100 includes leads 130, 140 which are disposed in spaced relation to the die pad 120. Each lead 130 is described as including a top surface 131 and an opposed, generally planar bottom surface 132. Similarly, each lead 140 is described as including a

top surface 141 and an opposed, generally planar bottom surface 142. The chip 110 is electrically connected to the leads 130, 140 through the use of bond wires 170, 180. The chip 110, bond wires 170, 180, die pad 120, and leads 130, 140 are covered by molding compound 150.

As is shown in Figure 1 of the Sharma et al. reference and specifically disclosed in the specification thereof, the molding compound 150 encapsulates the chip 110, die pad 120, and leads 130, 140 such that the bottom surface 122 of the die pad 120, bottom surface 132 of the lead 130, and bottom surface 142 of the lead 140 are co-planar with the bottom surface 152 of the molding compound 150 (see **column 3, line 64 through column 4, line 4**). This configuration represents a substantial departure from the structural attributes of the semiconductor package described in independent Claims 29, 39 and 44 where, as indicated above, a portion(s) of the bonding pad(s) defining the lower surface(s) thereof protrude(s) from the lower surface of the molding compound. Such protrusion is clearly depicted in Figures 5 and 6 of the present application. The teachings of the Sharma et al. reference also represent a departure from those dependent claims of the present application which describe a portion of the die pad defining the lower surface thereof as protruding from the lower surface of the molding compound since, as indicated above, the bottom surface 122 of the die pad 120 in the Sharma et al. reference is described as being co-planar with the bottom surface 152 of the molding compound 150.

In fact, what is depicted in Figure 1 of the Sharma et al. reference as protruding from the bottom surface 152 of the molding compound 150 is **not** any portion of the leads 130, 140 or die pad 120, but rather the plating of silver solder which is specifically described in the Sharma et al. reference as being applied to the exposed bottom surfaces 132, 142 of the leads 130, 140 and the exposed bottom surface 122 of the die pad 120 (see **column 4, line 64 through column 5, line 4**).

In the latest Office Action, the Examiner addresses this distinction by stating:

“It is inherent that the leads (130,140) include the bonding pads because leads are conventionally connected through bonding pads to the structure it interconnects between the wires and the external circuit.”

Though it is unclear, the language of this argument suggests that the Examiner is either arguing that the leads 130, 140 described in the Sharma et al. reference and the bonding pads recited in each of independent Claims 29, 39 and 44 are one and the same, or that the silver solder layers plated onto the bottom surfaces 132, 142 of the leads 130, 140 as described in the Sharma et al. reference inherently comprise part of such leads 130, 140.

Applicant respectfully submits that neither of these interpretations of the Examiner's argument provides a legitimate basis to support the Section 102(e) rejection presented in this latest Office Action. In this respect, if the leads 130, 140 of the Sharma et al. reference are deemed to be analogous to the bonding pads recited in independent Claims 29, 39 and 44, the Section 102(e) rejection is inappropriate since, as explained above, the bottom surfaces 132, 142 of the leads 130, 140 are specifically described in the Sharma et al. reference as being co-planar with the bottom surface 152 of the molding compound 150. In this regard, it is only the layers of silver solder plated onto the bottom surface 132 of the lead 130, the bottom surface 142 of the lead 140, and the bottom surface 122 of the die pad 120 which protrude from the bottom surface 152 of the molding compound 150.

If, on the other hand, the Examiner is viewing the layers of silver solder plated to the bottom surfaces 132, 142 of the leads 130, 140 as inherently comprising portions of the leads 130, 140, Applicant respectfully submits that this argument is inappropriate. The Examiner is reminded that in order for inherency to be present, it must be a necessary result, and not merely a possible result. Ex parte Keith and Turnquest, 154 U.S.P.Q. 320 (B.O.A., 1966). Further, the burden is on the Examiner to establish that the reference inherently includes what the Applicant claims. In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the prior art. Ex parte Levy, 17 U.S.P.Q.2d 1461 (B.P.A.I., 1190).

Applicant respectfully submits that the layers of silver solder described as being plated onto the bottom surfaces 132, 142 of the leads 130, 140 and the bottom surface 122 of the die pad 120 in the Sharma et al. reference are not properly viewed as portions

of the leads 130, 140 or die pad 120. In this regard, even a cursory review of semiconductor art firmly establishes that semiconductor packages are normally manufactured without solder or another conductive material being pre-plated onto exposed surfaces of the leads or die pad. Though Applicant recognizes that solder plating will at times be applied to the leads of a semiconductor package to assist in the mounting and electrical connection of such semiconductor package to complimentary terminals of an underlying substrate such as a printed circuit board (PCB), it is just as common to apply solder plating or solder bumps to the terminals of the PCB as a precursor to mating the leads of a semiconductor package thereto, the ultimate mounting and electrical connection of the semiconductor package to the PCB being facilitated by reflowing the solder bumps pre-applied to the terminals thereof. Simply stated, any conclusion that the silver solder plating included on the bottom surfaces 132, 142 comprises portions of the leads 130, 140 is unsupported by the record and inaccurate.

On the basis of the foregoing, Applicant respectfully submits that the stated grounds of rejection have been overcome, and that Claims 29-48 are in condition for allowance. Additionally, Applicant respectfully submits that the present Amendment does not introduce any new issues which would require further searching on the part of the Examiner, and therefore respectfully requests that the same be considered and entered by the Examiner. An early Notice of Allowance is therefore respectfully requested.

If any additional fee is required, please charge Deposit Account Number 19-4330.

Date:

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Respectfully submitted,

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